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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/996,836	11/29/2001	Keiji Matsumoto	YOR920000819US2	2578

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IBM CORPORATION  
INTELLECTUAL PROPERTY LAW DEPT.  
P.O. BOX 218  
YORKTOWN HEIGHTS, NY 10598

EXAMINER
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CHOI, WILLIAM C

ART UNIT	PAPER NUMBER
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2873

DATE MAILED: 06/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application N .

09/996,836

Applicant(s)

MATSUMOTO ET AL.

Examiner

William C. Choi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 May 2004.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 9-14 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 9-14 is/are rejected.  
7) ☒ Claim(s) 1-5 and 16 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 08 April 2002 & 13 November 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☒ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. 0604.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Objections*

Claim 1 (and dependent claims 2-5 and 16) is objected to because of the following informalities: in line 3, "electrode has" should be changed to "electrodes have" in agreement with line 2. The dependent claims inherit the objection from the parent claim. Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 9-11 (and dependent claims 12 and 13) and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Specifically, applicant sets forth in line 4 of these claims, the limitations of "dielectric layers", "transparent substrates" and "a bottom plate", which in total number at least 5 layers. Applicant then further discloses "**one** or more color cells". From the disclosed embodiments as well as from the remaining claim language, one color cell would not be able to embody the at least 5 layers set forth in the claim. Therefore, for purposes of examination, it was assumed that applicant meant to claim, "at least two color cells".

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aomori et al (U.S. 5,625,474) in view of Forrest et al (U.S. 5,707,745).

In regard to claim 14, Aomori discloses a structure which has connections running vertically (column 10, lines 27-31, Figure 1, "9b, 9c, 16c") through individual transparent dielectric layers (column 11, lines 50-56, Figure 1, "6, 8", re "polyimide") using metal filled holes which permit to make vertical connections through individual transparent substrates (column 10, lines 32-49, Figure 1, "10, 17") from TFT's on a bottom plate (column 9, line 64 – column 10, line 2, Figure 1, "2a, 2b, 2c" & "1") to individual electrodes (column 10, lines 20, 33-34, and 54-55, Figure 1, "5, 14, 21") in at least two color cell levels (column 10, lines 10, 32 and 54, Figure 1, "51, 52, 53"), wherein said at least two color cells include hollow spaces containing said individual electrodes (column 10, lines 25-27 & 49-51 and column 11, lines 1-3, Figure 1, "26, 27, 28"), at least one of said individual electrodes is made of transparent ITO (column 5, lines 39-44), and discloses wherein said hollow space contains liquid crystal instead of electroluminescent material to provide an Organic Light Emitting Diode as set forth in the claims. Within the same field of endeavor, Forrest et al teaches that it is desirable for stacked cell displays to have electroluminescent media over liquid crystal since liquid

crystal displays have low contrast and resolution and require high power backlighting (column 1, lines 20-34 and column 2, line 62 – column 3, line 12).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made for the hollow space of Aomori et al to contain electroluminescent material to provide an OLED since Forrest et al teaches that it is desirable for stacked cell displays to have electroluminescent media over liquid crystal since liquid crystal displays have low contrast and resolution and require high power backlighting.

#### ***Allowable Subject Matter***

Claims 1-5 and 16 would be allowable if rewritten or amended to overcome the objections set forth in this Office action as well as to incorporate the suggested amendment set forth below.

Claims 9-13 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

The following is a statement of reasons for the indication of allowable subject matter: The prior art fails to teach a combination of all the claimed features as presented in claim 9: a structure using metal filled via holes which permit to make vertical connections through individual transparent substrates from TFT's on a bottom plate to individual electrodes in at least two color cell levels as claimed, specifically further including metal walls in each pixel on each color cell level to provide a ground potential

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an a respective central electrode activated or deactivated by an applied potential from a respective TFT to collect or disperse said electrophoretic fluid.

The prior art fails to teach a combination of all the claimed features as presented in claim 10: a structure using metal filled via holes which permit to make vertical connections through individual transparent substrates from TFT's on a bottom plate to individual electrodes in at least two color cell levels as claimed, specifically further including metal walls surrounding each pixel and having holes on each side of said pixel to permit forming a meandering path for fluid whereby all pixels can be readily filled with the electrophoretic fluid or a liquid crystal (fluid) without entrapment of air bubbles at times when a vacuum is applied on one side of said structure.

The prior art fails to teach a combination of all the claimed features as presented in claims 11-13: a structure using metal filled via holes which permit to make vertical connections through individual transparent substrates from TFT's on a bottom plate to individual electrodes in at least two color cell levels as claimed, specifically further wherein the electrodes are overcoated with a layer of dielectric to permit a potential large enough to collect or disperse electrophoretic fluid without discharging particles in said fluid.

#### ***Examiner's Comment***

The following amended language is suggested to clarify claim 1 and to put the claim in condition for allowance:

"A structure consisting of at least two layers of transparent dielectric containing via holes filled with a conducting material and a pattern of metal electrodes, in which the metal electrodes have at least a surface coated with a soldering metal or alloy, which, upon alignment of patterns, said layers are joined together, forming said structure by heating said soldering metal or alloy; the metal patterns on each layer forming electrodes and at the same time a spacer, of which said electrodes can be used to produce a display in which the color cells are stacked on top of each other."

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

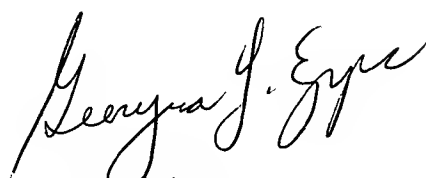
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William C. Choi whose telephone number is (571) 272-2324. The examiner can normally be reached on Monday-Friday from about 9:00 am to 6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Y. Epps can be reached on (571) 272-2328. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

W.C.  
William Choi  
Patent Examiner  
Art Unit 2873  
June 4, 2004

  
Georgia Epps  
Supervisory Patent Examiner  
Technology Center 2800